Condl.

AT. (Amended) A [system] method as in Claim 40, wherein: the data acquired from the first data source are

television or radio broadcast signals; and the data acquired from the second data source are

the data acquired from the second data source are computer-readable data files.

(Amended) A method for identifying the boundaries of segments in a body of information, each segment comprising a contiguous related set of information in the body of information, wherein the body of information is represented by a set of text data, a set of video data, and a set of audio data, the method comprising the steps of:

performing a coarse partitioning method, the coarse partitioning method further comprising the steps of:

identifying time-stamped markers in the set of text data; and

determining approximate segment boundaries within the body of information as the times of occurrence of the time-stamp markers;

for each approximate segment boundary, specifying a range of time that includes the time of occurrence of the approximate segment boundary;

extracting subsets of audio data from the set of audio data that occur during the specified ranges of time;

performing a fine partitioning method to identify one or more breaks in the set of audio data;

90

selecting the best break that occurs in each subset of audio data, the time of occurrence of the best break in each subset being designated as a boundary of a segment in the body of information;

ascertaining a synchronization of the audio data and the video data; and

determining the location of the segment boundaries in the set of video data using the previously determined location of the segment boundaries in the set of audio data and the synchronization of the audio data and video data.

Please enter the following new claims:

21.68. (New) A method as in Claim 29, further comprising the step of causing the display of the portion or representation of the second segment to occur substantially coextensive in time with the display of the related first segment.

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69. A method as in Claim 38, wherein:

the step of acquiring data representing the body of information further comprises the step of acquiring audiovisual data representing at least a portion of the body of information, wherein the first and second segments are represented by audiovisual data; and

the step of generating a display of a first segment of the body of information further comprises the step of generating an audiovisual display of the first segment.

- 3 -

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A method as in Claim 29, further comprising the step of identifying the selection of a second segment for which a portion or representation is being displayed, wherein selection of such second segment causes an audiovisual display of the selected second segment to be produced.

A method as in Claim 3, wherein:

the step of acquiring data representing the body of information further comprises the step of acquiring audiovisual data representing at least a portion of the body of information;

the step of generating a display of a first segment of the body of information further comprises the step of generating an audiovisual display of the first segment; and

the step of generating a display of a portion of, or a representation of, a second segment of the body of information further comprises the step of generating a text display of the portion or representation of the second segment.

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20. A method as in Claim 25, wherein:

the step of generating a display of a first segment of the body of information further comprises the step of generating a display of the first segment on an analog display device; and





the step of generating a display of a portion of, or a representation of, a second segment of the body of information further comprises the step of generating a display of the portion or representation of the second segment on a digital display device.

A method as in Claim 35, wherein:

the step of generating a display of the first segment on an analog display device further comprises the step of generating a display of the first segment on a television; and

the step of generating a display of the portion or representation of the second segment on a digital display device further comprises the step of generating a display of the portion or representation of the second segment on a computer display monitor.

A method as in Claim 35, further comprising the step of identifying the subject matter content of a segment of the body of information, wherein the step of comparing further comprises the step of determining the similarity of the subject matter content of a segment to the subject matter content of a different segment, the predetermined criteria including a predefined degree of similarity with respect to which the relatedness of the compared segments is determined.

A method as in Claim 24, wherein the step of determining the similarity of the subject matter of segments further comprises the step of performing a relevance feedback method.

26. A method as in Claim 25, wherein the step of acquiring data further comprises the step of acquiring television broadcast signals.

A method as in Claim 25, wherein the step of acquiring data further comprises the step of acquiring radio broadcast signals.

31 36. A method as in Claim 35, wherein the step of acquiring data further comprises the step of acquiring computer-readable data files over a computer network from an information providing site that is part of that network.

A method as in Claim 25, wherein the step of acquiring data further comprises the steps of:

acquiring television broadcast signals; and acquiring computer-readable data files over a computer network from an information providing site that is part of that network.

33

20. A method as in Claim 79, wherein:

the first segment is represented by data produced from the television broadcast signals; and

the second segment is represented by data from the computer-readable data files.

- A method as in Claim 25, further comprising the step of identifying an instruction from a user to begin displaying at least some of the body of information, wherein the display of a first segment is begun in response to the user instruction.
- 35. A method as in Claim 36, wherein the first and second segments are displayed on physically separate display devices.
- A method as in Claim 25, wherein the steps of storing the acquired data, generating a display of a first segment of the body of information, and generating a display of a portion of, or a representation of, a second segment of the body of information are performed by devices interconnected to a conventional computer bus that enables the devices to communicate with each other such that the devices do not require wire communication over network communication lines to communicate with each other.
- A method as in Claim 3, wherein at least some of the acquired data is digital data, the step of acquiring data further comprising the step of acquiring digital data.



A method as in Claim 35, wherein at least some of the acquired data is analog data, the step of acquiring data further comprising the step of acquiring analog data.

A computer readable medium as in Claim 59, further comprising instructions for causing the display of the portion or representation of the second segment to occur substantially coextensive in time with the display of the related first segment.

87. A computer readable medium as in Claim 59, wherein: the instructions for acquiring data representing the body of information further comprise instructions for acquiring audiovisual data representing at least a portion of the body of information, wherein the first and second

the instructions for generating a display of a first segment of the body of information further comprise instruction for generating an audiovisual display of the

segments are represented by audiovisual data; and

first segment.

26. A computer readable medium as in Claim 87, further comprising instructions for identifying the selection of a second segment for which a portion or representation is being displayed, wherein selection of such second segment causes an audiovisual display of the selected second segment to be produced.

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67

A computer readable medium as in Claim 59, wherein:

the instructions for acquiring data representing the body of information further comprise instructions for acquiring audiovisual data representing at least a portion of the body of information;

the instructions for generating a display of a first segment of the body of information further comprise instructions for generating an audiovisual display of the first segment; and

the instructions for generating a display of a portion of, or a representation of, a second segment of the body of information further comprise instructions for generating a text display of the portion or representation of the second segment.

68 20. A computer readable medium as in Claim 5%, wherein:

the instructions for generating a display of a first segment of the body of information further comprise instructions for generating a display of the first segment on an analog display device; and

the instructions for generating a display of a portion of, or a representation of, a second segment of the body of information further comprise instructions for generating a display of the portion or representation of the second segment on a digital display device.

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A computer readable medium as in Claim 39, wherein:

the instructions for generating a display of the first segment on an analog display device further comprise instructions for generating a display of the first segment on a television; and

the instructions for generating a display of the portion or representation of the second segment on a digital display device further comprise instructions for generating a display of the portion or representation of the second segment on a computer display monitor.

A computer readable medium as in Claim 59, further comprising instructions for identifying the subject matter content of a segment of the body of information, wherein the instructions for comparing further comprise instructions for determining the similarity of the subject matter content of a segment to the subject matter content of a different segment, the predetermined criteria including a predefined degree of similarity with respect to which the relatedness of the compared segments is determined.

A computer readable medium as in Claim 92, wherein the instructions for determining the similarity of the subject matter of segments further comprise instructions for performing a relevance feedback method.



A computer readable medium as in Claim 59, wherein the instructions for acquiring data further comprise instructions for acquiring television broadcast signals.

95. A computer readable medium as in Claim 57, wherein the instructions for acquiring data further comprise instructions for acquiring radio broadcas+ signals.

A computer readable medium as in Claim 55, wherein the instructions for acquiring data further comprise instructions for acquiring computer-readable data files over a computer network from an information providing site that is part of that network.

27. A computer readable medium as in Claim 59, wherein the instructions for acquiring data further comprise:

instructions for acquiring television broadcast signals; and

instructions for acquiring computer-readable data files over a computer network from an information providing site that is part of that network.

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26. A computer readable medium as in Claim 97, wherein:

the first segment is represented by data produced from the television broadcast signals; and

the second segment is represented by data from the computer-readable data files.

- 11 -

99. A computer readable medium as in Claim 39, further comprising instructions for identifying an instruction from a user to begin displaying at least some of the body of information, wherein the display of a first segment is begun in response to the user instruction.

18 63 100. A computer readable medium as in Claim 59, wherein the first and second segments are displayed on physically separate display devices.

A computer readable medium as in Claim 59, wherein the instructions for storing the acquired data, generating a display of a first segment of the body of information, and generating a display of a portion of, or a representation of, a second segment of the body of information are executed by devices interconnected to a conventional computer bus that enables the devices to communicate with each other such that the devices do not require wire communication over network communication lines to communicate with each other.

102. A computer readable medium as in Claim 5%, wherein at least some of the acquired data is digital data, the instructions for acquiring data further comprising instructions for acquiring digital data.

103. A computer readable medium as in Claim 59, wherein at least some of the acquired data is analog data, the instructions for acquiring data further comprising instructions for acquiring analog data.

\$3 104. A computer readable medium as in Claim \$60, wherein the instructions for determining the degree of similarity further comprise instructions for performing a relevance feedback method.

195. A computer readable medium as in Claim 60, wherein the instructions for identifying one or more of the previously categorized segments as relevant to the uncategorized segment further comprise:

instructions for identifying a plurality of the previously categorized segments that are the most similar to the uncategorized segment;

instructions for determining the degree of similarity between each of the plurality of previously categorized segments and each other of the plurality of previously categorized segments;

instructions for eliminating, for each pair of previously categorized segments of the plurality of previously categorized segments having greater than a predefined degree of similarity, one of the pair of previously categorized segments from the plurality of previously categorized segments, wherein the remaining previously categorized segment or segments are similar and





distinct previously categorized segments; and

instructions for identifying one or more of the similar and distinct previously categorized segments as relevant previously categorized segments.

- 106. A computer readable medium as in Claim 56, wherein the instructions for selecting one or more subject matter categories further comprise instructions for selecting the most frequently occurring subject matter category or categories associated with the relevant previously categorized segments.
- 107. A computer readable medium as in Claim 60, wherein the uncategorized segment has been acquired from a first data source and the previously categorized segment or segments have been acquired from a second data source that is different than the first data source.

208. A computer readable medium as in Claim 107, wherein:

the data acquired from the first data source are television or radio broadcast signals; and

the data acquired from the second data source are computer-readable data files.

an uncategorized segment of a body of information that includes a plurality of segments, each segment representing a defined set of information in the body of information, one or more segments of





the body of information having previously been categorized by identifying each of the one or more segments with one or more subject matter categories, the system comprising:

means for determining the degree of similarity between the subject matter content of the uncategorized segment and the subject matter content of each of the previously categorized segments;

means for identifying one or more of the previously categorized segments as relevant to the uncategorized segment based upon the determined degrees of similarity of subject matter content between the uncategorized segment and the previously categorized segments; and

means for selecting one or more subject matter categories with which to identify the uncategorized segment based upon the subject matter categories used to identify the relevant previously categorized segments.

A system as in Claim 109, wherein the means for determining the degree of similarity further comprises means for performing a relevance feedback method.

A system as in Claim 109, wherein the means for identifying one or more of the previously categorized segments as relevant to the uncategorized segment further comprises:

means for identifying a plurality of the previously categorized segments that are the most similar to the uncategorized segment;

107

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means for determining the degree of similarity between each of the plurality of previously categorized segments and each other of the plurality of previously categorized segments;

means for eliminating, for each pair of previously categorized segments of the plurality of previously categorized segments having greater than a predefined degree of similarity, one of the pair of previously categorized segments from the plurality of previously categorized segments, wherein the remaining previously categorized segment or segments are similar and distinct previously categorized segments; and

means for identifying one or more of the similar and distinct previously categorized segments as relevant previously categorized segments.

A system as in Claim 109, wherein the means for selecting one or more subject matter categories further comprises means for selecting the most frequently occurring subject matter category or categories associated with the relevant previously categorized segments.

segment has been acquired from a first data source and the previously categorized segment or segments have been acquired from a second data source that is different than the first data source.



106 114. A system as in Claim 113, wherein:

the data acquired from the first data source are television or radio broadcast signals; and

the data acquired from the second data source are computer-readable data files.

A computer readable medium as in Claim , wherein the first type of data is audiovisual data and the second type of data is text data.

146. A computer readable medium as in Claim 143, wherein the instructions for determining the degree of similarity further comprise instructions for performing a relevance feedback method.

plurality of sets of information, each different from the other sets of the plurality of sets of information, are each represented by an associated set of data of the second type, the one or more computer programs enabling determination of which, if any, of the plurality of sets of information represented by a set of data of the second type are relevant to the first set of information represented by the set of data of the first type, the one or more computer programs further comprising:

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instructions for determining the degree of similarity between each set of data of the second type representing one of the plurality of sets of information and the derived set of data of the second type representing the first set of information;

instructions for identifying which, if any, of the sets of data of the second type representing one of the plurality of sets of information have greater than a predefined degree of similarity to the derived set of data of the second type representing the first set of information, the sets of data of the second type so identified being termed similar sets of data of the second type;

instructions for determining the degree of similarity between each similar set of data of the second type and each other similar set of data of the second type;

instructions for eliminating, for each pair of similar sets of data of the second type having greater than a predefined degree of similarity, one of the pair of similar sets of data of the second type from the set of similar sets of data of the second type, wherein the remaining set or sets of similar data of the second type are similar and distinct sets of data of the second type; and

instructions for identifying the set or sets of information corresponding to one or more of the similar and distinct sets of data of the second type as relevant to the second set of information.

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A computer readable medium as in Claim 17, wherein the instructions for identifying the relevant set or sets of information further comprise instructions for identifying no more than a predetermined number of relevant sets of information, the predetermined number of relevant sets of information corresponding to the sets of data of the second type having the greatest degree of similarity to the derived set of data of the second type.

19. A computer readable medium as in Claim £7, wherein the first type of data is analog data and the second type of data is digital data.

120. A system for determining whether a first set of information represented by a set of data of a first type is relevant to a second set of information represented by a set of data of a second type, the first and second sets of information being different from each other, the system comprising:

means for deriving a set of data of the second type from the set of data of the first type, the derived set of data of the second type also being representative of the first set of information;

means for determining the degree of similarity between the set of data of the second type representing the second set of information and the derived set of data of the second type representing the first set of information; and means for determining whether the first set of information is relevant to the second set of information based upon the degree of similarity between the set of data of the second type representing the second set of information and the derived set of data of the second type representing the first set of information.

107
121. A system as in Claim 120, wherein the first type of data is audiovisual data and the second type of data is text data.

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107 122. A system as in Claim 124, wherein the means for determining the degree of similarity further comprises means for performing a relevance feedback method.

A system as in Claim 120, wherein a plurality of sets of information, each different from the other sets of the plurality of sets of information, are each represented by an associated set of data of the second type, the system enabling determination of which, if any, of the plurality of sets of information represented by a set of data of the second type are relevant to the first set of information represented by the set of data of the first type, the system further comprising:

means for determining the degree of similarity between each set of data of the second type representing one of the plurality of sets of information and the derived set of data of the second type representing the first set of information;

means for identifying which, if any, of the sets of data of the second type representing one of the plurality of sets of information have greater than a predefined degree of similarity to the derived set of data of the second type representing the first set of information, the sets of data of the second type so identified being termed similar sets of data of the second type;

means for determining the degree of similarity between each similar set of data of the second type and each other similar set of data of the second type;

means for eliminating, for each pair of similar sets of data of the second type having greater than a predefined degree of similarity, one of the pair of similar sets of data of the second type from the set of similar sets of data of the second type, wherein the remaining set or sets of similar data of the second type are similar and distinct sets of data of the second type; and

means for identifying the set or sets of information corresponding to one or more of the similar and distinct sets of data of the second type as relevant to the second set of information.

- 21 -



- A system as in Claim 23, wherein the means for identifying the relevant set or sets of information further comprises means for identifying no more than a predetermined number of relevant sets of information, the predetermined number of relevant sets of information corresponding to the sets of data of the second type having the greatest degree of similarity to the derived set of data of the second type.
- 125. A system as in Claim 126, wherein the first type of data is analog data and the second type of data is digital data.
- A computer readable medium as in Claim 2, wherein the instructions for performing a fine partitioning method further comprise instructions for identifying the best breaks using a process that includes scene break identification.
- 26. A computer readable medium as in Claim 62, wherein the fine partitioning method is performed on the entire set of video data to identify all of the breaks in the set of video data.
- 126. A computer readable medium as in Claim 62, wherein the fine partitioning method is performed only on the subsets of video data to identify only breaks that occur in the subsets.
- 129. A computer readable medium as in Claim 62, wherein the best break of each subset is determined according to the criteria of the fine partitioning method used.

130. A computer readable medium as in Claim 62, wherein the best break of each subset is the break occurring closest in time to the time of occurrence of the segment boundary in the text data that corresponds to that subset.

131. A computer readable medium as in Claim 62, wherein the body of information is represented by a set of text data, a set of audio data and a set of video data, the one or more computer programs further comprising:

instructions for ascertaining a synchronization of the audio data and the video data; and

instructions for determining the location of the segment boundaries in the set of audio data using the previously determined location of the segment boundaries in the set of video data and the synchronization of the audio data and video data.

232. A computer readable medium encoded with one or more computer programs for identifying the boundaries of segments in a body of information, each segment comprising a contiguous related set of information in the body of information, wherein the body of information is represented by a set of text data, a set of video data, and a set of audio data, comprising:

instructions for performing a coarse partitioning method, the instructions for performing a coarse partitioning method further comprising:

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instructions for identifying time-stamped markers in the set of text data; and

instructions for determining approximate segment boundaries within the body of information as the times of occurrence of the time-stamp markers;

instructions for specifying, for each approximate segment boundary, a range of time that includes the time of occurrence of the approximate segment boundary;

instructions for extracting subsets of audio data from the set of audio data that occur during the specified ranges of time;

instructions for performing a fine partitioning method to identify one or more breaks in the set of audio data;

instructions for selecting the best break that occurs in each subset of audio data, the time of occurrence of the best break in each subset being designated as a boundary of a segment in the body of information;

instructions for ascertaining a synchronization of the audio data and the video data; and

instructions for determining the location of the segment boundaries in the set of video data using the previously determined location of the segment boundaries in the set of audio data and the synchronization of the audio data and video data.



instructions for performing fine partitioning further comprise instructions for identifying the best breaks using a process that includes pause recognition.

A computer readable medium as in Claim 132, wherein the instructions for performing fine partitioning further comprise instructions for identifying the best breaks using a process that includes voice recognition.

135. A computer readable medium as in Claim 132, wherein the instructions for performing fine partitioning further comprise instructions for identifying the best breaks using a process that includes word recognition.

136. A computer readable medium as in Claim 132, wherein the instructions for performing fine partitioning further comprise instructions for identifying the best breaks using a process that includes music recognitmen.

A system for identifying the boundaries of segments in a body of information, each segment comprising a contiguous related set of information in the body of information, wherein the body of information is represented by at least a set of text data and a set of video data, the system comprising:

17

means for performing a coarse partitioning method, the means for performing a coarse partitioning method further comprising:

means for identifying time-stamped markers in the set of text data; and

means for determining approximate segment boundaries within the body of information as the times of occurrence of the time-stamp markers;

means for specifying, for each approximate segment boundary, a range of time that includes the time of occurrence of the approximate segment boundary;

means for extracting subsets of video data from the set of video data that occur during the specified ranges of time;

means for performing a fine partitioning method to identify one or more breaks in the set of video data; and

means for selecting the best break that occurs in each subset of video data, the time of occurrence of the best break in each subset being designated as a boundary of a segment in the body of information.

performing a fine partitioning method further comprises means for identifying the best breaks using a process that includes scene break identification.

method is performed on the entire set of video data to identify all of the breaks in the set of video data.

method is performed only on the subsets of video data to identify only breaks that occur in the subsets.

122 141. A system as in Claim 137, wherein the best break of each subset is determined according to the criteria of the fine partitioning method used.

A system as in Claim 137, wherein the best break of each subset is the break occurring closest in time to the time of occurrence of the segment boundary in the text data that corresponds to that subset.

A system as in Claim 137, wherein the body of information is represented by a set of text data, a set of audio data and a set of video data, the system further comprising:

means for ascertaining a synchronization of the audio data and the video data; and

means for determining the location of the segment boundaries in the set of audio data using the previously determined location of the segment boundaries in the set of video data and the synchronization of the audio data and video data.

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A system for identifying the boundaries of segments in a body of information, each segment comprising a contiguous related set of information in the body of information, wherein the body of information is represented by a set of text data, a set of video data, and a set of audio data, the system comprising:

means for performing a coarse partitioning method, the means for performing a coarse partitioning method further comprising:

means for identifying time-stamped markers in the set of text data; and

means for determining approximate segment boundaries within the body of information as the times of occurrence of the time-stamp markers;

means for specifying, for each approximate segment boundary, a range of time that includes the time of occurrence of the approximate segment boundary;

means for extracting subsets of audio data from the set of audio data that occur during the specified ranges of time;

means for performing a fine partitioning method to identify one or more breaks in the set of audio data;

means for selecting the best break that occurs in each subset of audio data, the time of occurrence of the best break in each subset being designated as a boundary of a segment in the body of information;





means for ascertaining a synchronization of the audio data and the video data; and

means for determining the location of the segment boundaries in the set of video data using the previously determined location of the segment boundaries in the set of audio data and the synchronization of the audio data and video data.

125. A system as in Claim 144, wherein the means for performing a fine partitioning method further comprises means for identifying the best breaks using a process that includes pause recognition.

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127 146. A system as in Claim 144, wherein the means for performing a fine partitioning method further comprises means for identifying the best breaks using a process that includes voice recognition.

125
147. A system as in Claim 147, wherein the means for performing a fine partitioning method further comprises means for identifying the best breaks using a process that includes word recognition.

129
148. A system as in Claim 144, wherein the means for performing a fine partitioning method further comprises means for identifying the best breaks using a process that includes music recognition.



